

Changes in parental work time and earnings

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Families are spending a lot more time on the job than the previous generation, mostly due to the rising labour market participation of women. The weekly work hours of couples increased from an average of 58 in 1976 to 65 hours in 2008 (Marshall 2009). The increase in parental work time brings increased attention to issues related to work-life balance among policymakers, family service providers and the general public.

One question of primary importance for family well-being is whether increases in family work time translated into higher family earnings, particularly in the case of families with children. If not all parents benefited financially from increases in work time, a number of well-being issues could arise, for a variety of reasons. First, time and financial resources are found to be important determinants of children's outcomes in later life, even more so for very young children (Phipps and Lethbridge 2006). Second, lower-income working families may be unable to afford services such as day care or after-school programs that can be used as substitutes for the parental care of children. Third, families lacking both time and money may face a particular set of challenges in trying to achieve a better work-family balance (Bernstein and Kornbluh 2005). This article examines the link between parental work time and earnings across various types of families (see *Data source and definitions*).

Studies examining the relationship between family work time and family earnings in Canada have taken a descriptive approach based on percentiles. In what appears to be the only study describing the link between family work time and family income over time in Canada, Yalnizyan (2007) found that incomes

increased the most among families at the top of the income distribution (beyond the 90th percentile) without increases in work time. Families at the bottom of the earnings distribution were working more on average, but not earning more. Burton and Phipps (2007) also used a decile approach to study international differences in work time patterns across the income distribution, and found that many families located in the bottom decile of the income distribution worked a high number of hours, at least in Canada and the United States.

The use of deciles brings about a number of limitations. The first relates to the sample size in the Survey of Consumer Finances and the Survey of Labour and Income Dynamics. Although the decile approach divides the sample into equal sub-groups, the quantity of these groups is likely to limit the precision of estimates related to analytically significant groups within deciles.

Deciles can also be difficult to interpret since families in one decile today might not experience the same living standards as families in the same decile twenty-five years ago. For instance, families currently in the bottom decile earn less relative to the median family, depend more on government transfers, and therefore face a different set of challenges than their counterparts a generation ago. Similarly, families in the top decile today are undoubtedly different from those in 1980 since relative earnings increased in the top decile.

This article takes a new approach to family hours and earnings. First, it studies changes in work time from 1980 to 2005 across three groups of families with children: those below two-thirds of median family earnings ('low' earnings), families above four-thirds of

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Data source and definitions

This study examines the evolution of parental work patterns across the family earnings distribution using census information for the years 1981, 1991, 2001 and 2006. The census provides detailed information on sources of income at the family level, but for the year preceding the census year. For example, family earnings in the **2006 Census** are based on the 2005 calendar year. The study focuses on families with children under 16 years of age, and with parents under 55. The sample is restricted to families with at least one working parent since the study links family earnings to time spent at work by family members. Two-parent families represented the largest share of total families, numbering 2.5 million in every census year. Single-parent families represented a growing portion of families, doubling from 250,000 in 1981 to more than 500,000 in 2006.

The census was most recently conducted in 2006 and gathered information on a variety of socio-economic characteristics for 20% of Canadian households. Using the census ensures a better coverage of families across the entire distribution of earnings (Frenette, Green and Picot 2006). However, the census lacks data on weekly hours worked by individuals, which would allow detailed estimates of working time. However, work status (full-time versus part-time) for the weeks worked is collected. Full-time is defined as working at least 30 hours per week, and full-year is defined as working at least 50 work weeks per year. A part-time week refers to anything between 1 and 29 hours, and a part-year of work includes everything between 1 and 49 weeks of work.

Families living in a collective dwelling, families including non-permanent residents, and families with members who immigrated in the census year (or in the previous year) were excluded from the sample. This latter restriction is necessary because annual earnings statistics for these families would be biased downwards since they spent none or only part of the reference year in Canada. Family earnings include wages and salaries, net farm income, and net income from a non-farm unincorporated business and/or professional practice from both parents in the case of two-parent families and from the lone parent among single-parent families. All earnings figures have been deflated by using the national Consumer Price Index and are expressed in 2005 dollars. Outliers are addressed by removing the 1% of families with the highest earnings and the 1% of families with the lowest earnings. This adjustment is necessary because means are required to decompose the impact of changing family work time on changing family earnings, and means tend to be disproportionately influenced by families located at the extremes of the earnings distribution.

the median ('high' earnings), and families between two-thirds and four-thirds of the median ('middle' earnings). It also looks at the association between parental work time and earnings for these three types of families. The advantage of this approach is that both the size and relative earnings of each group can vary.

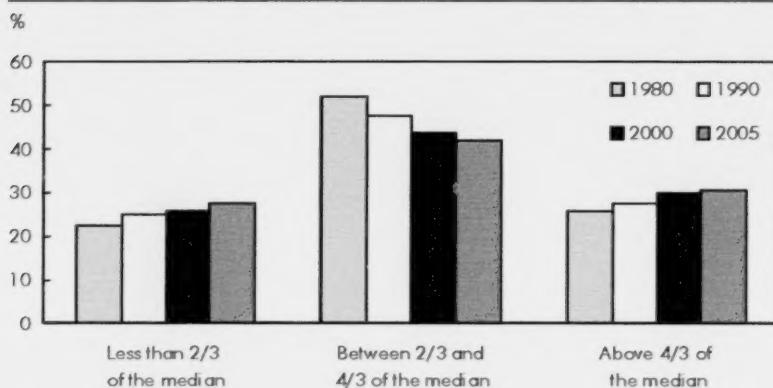
A second innovation is the use of census data. The census has two major advantages: consistent information about the work patterns of families since 1980 and a large sample size, thereby enabling study of the evolution of work time and earnings across all family types, including lone parents.

A third innovation is the use of decomposition techniques to examine the extent to which the growth in average parental earnings can be correlated with changes in parental work time at various points of the earnings distribution. More sophisticated decomposition techniques will also be used to determine the 2006 distribution of earnings if family work time and other family and personal characteristics had stayed the same over the past 25 years.¹

This paper focuses on families with children less than 16 years of age. The first part of the analysis examines the evolution of two-parent families, while the second covers single-parent families.² Because the focus is on changes in parental work time and earnings over time, families with two non-working parents (and non-working single parents) are excluded from the sample. These exclusions represent a very small portion of two-parent families (less than 3%), a higher portion of single fathers (10% to 15%) and a larger, but declining, share of single mothers (from a high of 38% in 1980 to a low of 23% in 2005). It should be noted, therefore, that the exclusion of families without working adults may create a bias of unknown magnitude—especially among lone mothers.

Changes in parental earnings

In 1980, more than 50% of two-parent families earned between two-thirds and four-thirds of the median (Chart A). Other families were almost evenly divided between those that earned less than two-thirds of the median (22%) and those that earned more than four-thirds of the median (26%). Subsequently, the proportion of families between two-thirds and four-thirds of the median (the middle) shrank in every census year, and the number of families rose at the extremes. By 2005, the proportion of families in the middle was 42%, the proportion of families with less than two-thirds of the median was 28%, and the proportion of those above four-thirds of the median was 30%. Hence, parental earnings became more 'polarized' over the last 25 years, similar to the results of another recent study (Heisz 2007).

Chart A Fewer families in the middle earnings group

Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

Not only did earnings become more polarized, but relative earnings across low, middle and high groups also changed. More particularly, median earnings rose faster for those located at the top of the distribution (Chart B). Between 1980 and 2005, median earnings for all families increased from \$58,400 to \$70,100, or 20%. By comparison, median earnings rose by 29% for families located above four-thirds of the median, and by 13% for families located below two-thirds of the median. The growth in median earnings for families located in the middle was very close to the overall growth (20%).

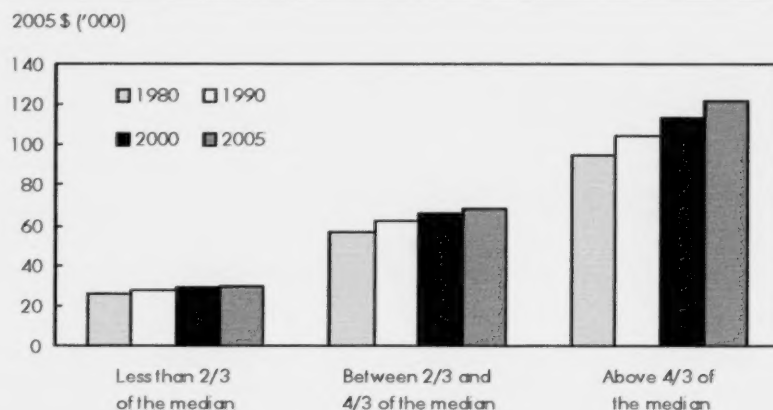
The ratio of median earnings illustrates the growing gap between families at the top and other types of families. Between 1980 and 2005, the ratio of median earnings between families at the top and families in the middle grew little (from 1.7 to 1.8), but the ratio of top-to-bottom earnings families

went from 3.6 to 4.1. By and large, these results point to growing polarization and growing dispersion of earnings across Canadian families.

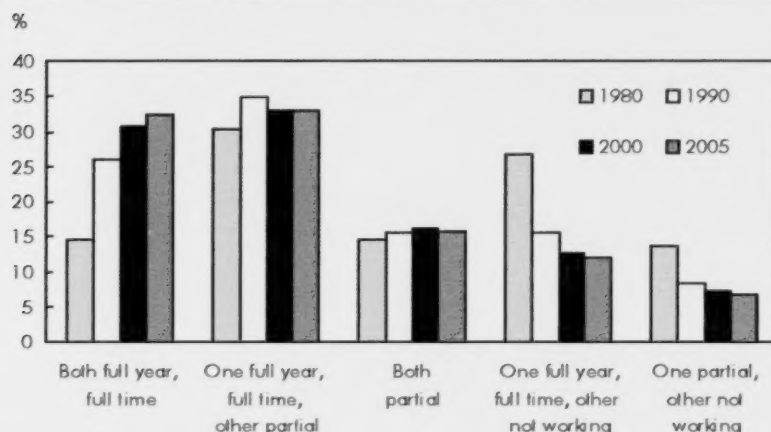
Changes in parental work time

Because the census does not provide information on work hours for the preceding year, changes in parental work time can be best described by combining the number of weeks worked with work status (full-time or part-time). The work patterns of individuals were therefore divided across three categories of work time patterns: individuals working full year and full time (FYFT); those with 'lower' labour market engagement (full year and part time, part year and full time, or part year and part time); and those not working at all.

In the case of two-parent families, five categories of working families were created: both parents working FYFT; one parent working FYFT and another with a lower labour market engagement; two parents with a lower labour

Chart B Greater gains in parental earnings in the top earnings group

Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

Chart C Proportion of families with two full-year, full-time working parents doubles

Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

pared with 32% of middle earnings families and only 13% of low earnings families. Conversely, low earnings families were more likely to have at least one parent out of the labour market (34%) compared with middle earnings families (15%) and high earnings families (9%). Hence, families working the most also tended to earn the most.

However, changes over time add a new dimension to the story. Between 1980 and 2005, work time increased somewhat faster among families located in the middle and at the bottom of the earnings distribution than at the top. The share of two FYFT parents among middle earnings families more than doubled, and the share with one FYFT and one parent with a lower labour market engagement increased by 5 per-

market engagement; one parent FYFT and another parent not working; and one parent with lower labour market engagement and another parent not working. The first and second categories are the most labour intensive of the five (at least in terms of time spent in the labour market), while the fourth and fifth categories are less labour intensive. As noted, families with two parents not working at all were dropped from the sample, but these amounted to a very small portion.

According to these definitions, the work patterns of two-parent families changed substantially over the past 25 years (Chart C). The share of families with two parents working FYFT rose from 15% in 1980 to 32% in 2005 (+18 percentage points). The share of families with one parent working FYFT and another not working declined by a substantial margin (-15 percentage points). A great deal of these changes took place in the 1980s.

Changes in work time for all three types of families—low, middle and high earnings—are shown in Table 1. Top earnings families had a larger share of two parents working full year and full time than those with lower earnings. In 2005, nearly 50% of all high earnings families had two parents working FYFT, com-

Table 1 Change in work patterns by earnings groups, two-parent families

	1980	2005
	%	
Less than 2/3 of the median	100.0	100.0
Both full year, full time	4.3	13.5
One full year, full time, other partial	17.7	28.4
Both partial	22.0	23.8
One full year, full time, other not working	25.4	17.3
One partial, other not working	30.6	17.1
Between 2/3 and 4/3 of the median	100.0	100.0
Both full year, full time	11.4	32.5
One full year, full time, other partial	33.2	38.1
Both partial	13.1	14.1
One full year, full time, other not working	31.7	11.8
One partial, other not working	10.6	3.5
Above 4/3 of the median	100.0	100.0
Both full year, full time	29.8	49.4
One full year, full time, other partial	36.0	30.1
Both partial	11.0	11.2
One full year, full time, other not working	18.1	7.4
One partial, other not working	5.1	1.9

Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

centage points (a total of 26 percentage points for the top two categories), accompanied by declining shares in the two least labour-intensive categories (a reduction of 27 percentage points). At the bottom of the distribution, the share of families in the top two working categories almost doubled (from 22% in 1980 to 42% in 2005) while the share of families in less labour-intensive categories decreased by corresponding amounts.

The share of families at the top of the earnings distribution with two FYFT workers also increased by a significant margin (20 percentage points), but the share with one FYFT worker and one with lower labour market engagement fell. As a result, the share of high earnings families in the top two labour-intensive categories grew by 14 percentage points. Overall then, the similarities in family work patterns between middle and top earnings families increased even as their median earnings diverged.

Link between changes in work time and earnings

Are the changes in parental work time related to changes in family earnings? To answer this question, a decomposition technique can be used to examine whether changing work time among low, middle and top earnings families contributed to changes in overall earnings.³ With this technique, the overall growth in average parental earnings (28%) can be broken down into changes in the average earnings of various groups, weighted by groups' shares of the population.⁴ Then the change in overall earnings can be attributed either to the change in groups' average earnings or to a change in the groups' shares of the population.⁵ While the latter shows the effect of the changing work time of each group on overall earnings growth, the former can be interpreted as changes in returns to work associated with a given amount of parental work time. Another advantage of this method is that each cell shows the percentage increase in earnings that would have occurred had no other factors changed. For instance, Table 2 shows that had nothing changed except the rise in the labour supply of high earnings families, average earnings would have risen by 4 percent.

Changes in parental work time were responsible for nearly one-half of the growth in average family earnings over the period from 1980 to 2005 (45%), with changes in average earnings (or returns to work) explaining the remainder (55%). However, the contribution of work time to earnings growth was different

Table 2 Decomposition of growth in average earnings, two-parent families

	Change 1980 to 2005		
	Total	In average earnings within groups	In shares
	percentage point		
Total	27.6	15.2	12.4
Less than 2/3 of the median	7.1	2.6	4.5
Between 2/3 and 4/3 of the median	8.2	3.9	4.3
Above 4/3 of the median	12.3	8.7	3.6
	percent shares		
Total	100.0	55.1	44.9
Less than 2/3 of the median	25.7	9.4	16.3
Between 2/3 and 4/3 of the median	29.7	14.1	15.6
Above 4/3 of the median	44.6	31.5	13.0

Note: Families in which neither parent worked are excluded.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

across the family earnings distribution. Increasing work activity among families at the bottom and in the middle each contributed 16% of the overall increase, while increasing work activity in high earnings families contributed 13%. Changes in returns to work were more important, as increases in average earnings among middle and lower earnings families explained 24% of the overall increase, while increases among high earnings families accounted for nearly one-third of the overall growth.

Hence, much of the overall increase in family earnings was found among high earnings families, but that increase was proportionately higher than the increase in their time spent at work. Indeed, families at the top of the earnings distribution contributed 45% of the overall increase in average earnings, but less than one-third of this was due to an increase in work time. Families in the middle and at the bottom respectively contributed 30% and 26% of the overall increase in earnings, but contrary to top earnings families, the vast majority of their contribution was rooted in an increase in parental work time.⁶

What if today's families had the same characteristics as those in 1980?

The link between changes in work time and overall earnings raises an interesting question. If work time patterns had remained the same as those in 1980,

Building alternative distributions of earnings

The DFL method involves developing alternative distributions of earnings by multiplying the weights of the 2005 sample of families by a 'reweighting factor' that accounts for changes in parental work time patterns and family and personal characteristics. Simply put, it allows us to answer the following question: "What would the density of family earnings be in 2005 if families had the same work patterns and the same personal characteristics as those in 1980?"

In mathematical terms, the 2005 density of earnings can be expressed as

$$f(w, t_w = 2005; t_{ph} = 2005, t_x) = \iint f(w | p, x, t_w = 2005) dF^2(p | x, t_w = 2005) dF^1(x | t_w = 2005)$$

where w =earnings, p =work patterns, and x =family characteristics.

Applying 1980 work patterns to our density of 2005 earnings yields

$$f(w, t_w = 2005; t_{ph} = 1980, t_x = 2005) = \iint f(w | p, x, t_w = 2005) \Psi_{p|x}(p, x) dF^2(p | x, t_w = 1980) dF^1(x | t_w = 2005)$$

where $\Psi_{p|x}(p, x)$ is a reweighting factor that applies 1980 work patterns (conditioning on 2005 family characteristics) to our density of earnings. Applying Bayes' rules, this factor can also be expressed as

$$\Psi_{p|x}(p, x) = \alpha_1 \frac{\Pr(p = 1 | x, t_{p|x} = 1980)}{\Pr(p = 1 | x, t_{p|x} = 2005)} + \alpha_2 \frac{\Pr(p = 2 | x, t_{p|x} = 1980)}{\Pr(p = 2 | x, t_{p|x} = 2005)} + \dots + \alpha_5 \frac{\Pr(p = 5 | x, t_{p|x} = 1980)}{\Pr(p = 5 | x, t_{p|x} = 2005)}$$

where p refers to our 5 categories of parental work time. Probabilities are then estimated through a series of multinomial logit regressions applied to our 2005 and 1980 sample of families.

Finally, applying the 1980 personal characteristics on the 2005 density of family earnings yields

$$f(w, t_w = 2005; t_{ph} = 1980, t_x = 1980) = \iint f(w | p, x, t_w = 2005) \Psi_{p|x}(p, x) dF^2(p | x, t_w = 1980) \Psi_x(x) dF^1(x | t_w = 1980).$$

Using Bayes' rules, this can also be written as

$$\Psi_x(x) = \Pr(t_x = 1980 | x) / \Pr(t_x = 2005 | x) \Pr(t_x = 2005) / \Pr(t_x = 1980).$$

The probability of being in period i , given individual attributes x , can be estimated by using a logit model in which observations for both 1980 and 2005 are pooled together. The $\Pr(t_i = 1980)$ is equal to the weighted number of observations in 1980 divided by the weighted number of observations in both 1980 and 2005.

The DFL decomposition has also been conducted in reverse order to confirm the validity of the results.

would the polarization and increase in earnings dispersion have been dampened? An empirical strategy was designed to address this question.

In doing so, it is important to control for changes in family and personal characteristics. If changes in family characteristics, for instance the education level of women,⁷ were concentrated in certain areas of the earnings distribution, it would affect the change in family earnings in a particular way. It is therefore important to examine the extent to which these characteristics, in addition to changes in work time, affected the distribution of earnings.⁸

A semi-parametric decomposition method along the lines of the one proposed in Dinardo, Fortin and Lemieux (1996) can be used to achieve these objectives. This method—henceforth called DFL—relies on the imposition of counterfactuals on the observed distribution of earnings in order to construct the distribution

that would have prevailed if work time patterns and family and personal characteristics had remained the same as those in 1980. These counterfactual distributions can be estimated by reweighting all observations on a sequential basis (see *Building alternative distributions of family earnings*). These new distributions can then be used to compute hypothetical statistics on polarization and median earnings across family types for the year 2005 (Table 3).

According to this technique, had work patterns remained the same as those in 1980, the share of families below two-thirds of the median would be 28% and the share of families above four-thirds of the median would be 31%. In other words, if work time patterns had been the same as those in 1980, polarization would still have increased. Furthermore, if family and personal characteristics had been the same as those in 1980, the proportion of two-parent families at the two extremities would have increased even

Table 3 Multivariate earnings decomposition, two-parent families

	Real 2005 distribution	Alternative 2005 distribution	
		1980 work patterns	1980 work patterns and family characteristics
Total	100.0	100.0	100.0
Less than 2/3 of the median	27.5	28.3	30.0
Between 2/3 and 4/3 of the median	42.1	40.6	38.7
Above 4/3 of the median	30.4	31.1	33.0
Earnings growth	20.0	11.8	-13.3
Less than 2/3 of the median	13.4	4.6	-22.1
Between 2/3 and 4/3 of the median	20.1	11.8	-13.6
Above 4/3 of the median	28.7	21.9	-4.6

Note: May not add to 100 due to rounding. Families in which neither parent worked are excluded.

Source: Statistics Canada, Census of Canada, 1981 and 2006.

further. In fact, this technique suggests that changes in work time and family characteristics had a dampening effect on polarization over this period.

So why wasn't polarization reduced by applying 1980 work patterns and personal characteristics to the 2005 distribution? Changes in wages, in particular, likely explain most of these trends. In past decades, increases at the very top of the income distribution have mostly been driven by increases in wages (Murphy, Roberts and Wolfson 2007). The drivers behind this phenomenon remain elusive. Possible explanations include the emergence of very specific high-wage skills or industries, changes in the bargaining power of workers with medium or low earnings, and changes in the labour compensation of high-income individuals (Sharpe, Arsenault and Harrison 2008). Unfortunately, these hypotheses are difficult to verify with existing survey data.⁹

Table 3 also shows how parental earnings would have changed if family characteristics and family work time patterns remained the same as those in 1980. While the overall median grew by 20% over the period, growth would have been more muted (12%) if work patterns had not changed. These results suggest that work hours accounted for approximately one-half of the overall increase in median earnings.

While work time contributed to the overall change in earnings, its magnitude was not the same across the distribution. Had work time patterns remained the same as those in 1980, median earnings for families at the bottom of the earnings distribution would have grown by 5%—about one-third of the actual growth rate (13%). Conversely, median earnings among families at the top of the distribution would have grown by 22%—three-quarters of the actual growth rate (29%). Growth among families in

the middle would have been 12%, as opposed to a real increase of 20%. This reinforces the earlier observation that changes in work time had a greater impact on earnings for families at the bottom and in the middle of the earnings distribution.

If both work patterns and personal characteristics had remained the same as those in 1980, the growth in median earnings would have been negative (-13%), highlighting the importance of changes in family and personal characteristics (including increases in educational attainment) for earnings growth. Again, these changes would not have been the same across the earnings distribution. Changes in median earnings would have been -22% among families with lower earnings, while the same figure would have been -5% among high earnings families—resulting in a higher hypothetical earnings gap between these two types of families.

If work time patterns and family characteristics of two-parent families had remained the same as those in 1980, then polarization would not have been dampened—it would have increased even more. Earnings levels would also be somewhat different, especially for families located at the bottom of the distribution, which means that the earnings gap between top and bottom earnings families would have grown by even wider margins. This suggests that increases in polarization and in the earnings gap cannot be linked to changes that took place in work patterns or in the demographic characteristics of families, and that other factors, possibly linked to changes in the wage structure, likely played a role in changing family earnings.

Table 4 Earnings distributions, single parents

	1980	1990	2000	2005
	%			
Single fathers	100.0	100.0	100.0	100.0
Less than 2/3 of the median	25.8	28.3	28.6	29.6
Between 2/3 and 4/3 of the median	48.3	43.0	39.9	38.9
Above 4/3 of the median	26.0	28.7	31.5	31.5
Single mothers	100.0	100.0	100.0	100.0
Less than 2/3 of the median	34.8	36.1	34.0	34.5
Between 2/3 and 4/3 of the median	29.7	28.9	28.1	29.9
Above 4/3 of the median	35.6	35.0	37.9	35.6

Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

Single-parent families

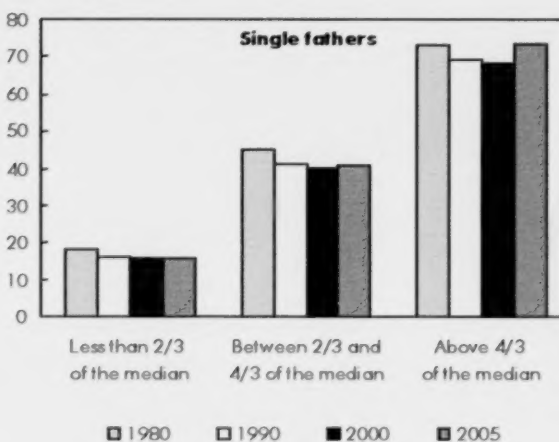
Single-parent families form an increasing portion of working families in Canada. Since such families are more likely to be financially vulnerable, the evolution of work time and earnings among these families was also examined.¹⁰ Two categories were used to describe the work patterns of single parents: those working full year and full time, and those with lower labour market engagement (full year and part time, part year and full time, or part year and part time). Separate analyses were conducted for men and women because labour market trends evolved differently for single mothers and single fathers (Table 4).

Similar to two-parent families, the earnings of single fathers became more polarized over the period. The share of families located in the middle of the distribution declined from 48% in 1980 to 40% in 2000 (with the other two groups gaining more families as a result). Among single mothers, the distribution remained stable over the past 25 years, with 35% of working mothers in the high and in the low earnings group, and 30% in the middle.¹¹

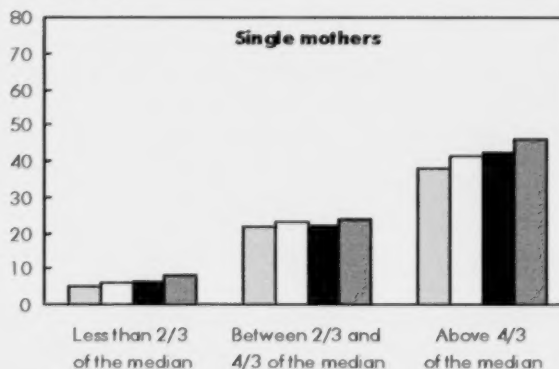
Earnings levels also changed considerably within groups. Earnings declined significantly for single fathers located at the bottom (-14%) and in the middle (-9%) of the distribution, and remained unchanged among single fathers located at the top (Chart D). Although their earnings remain lower than those of single fathers, single mothers in all earnings groups

Chart D Declining earnings for most groups of single fathers...but increasing for single mothers

2005 \$ ('000)



2005 \$ ('000)



Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 to 2006.

experienced significant increases in median earnings over the period—particularly those at both ends of the earnings distribution.

Were changes in earnings accompanied by changes in work time for single-parent families? In the case of fathers, the share of those working full year and full time remained quite stable in the middle and at the top of the earnings distribution (Table 5). Only fathers at

Table 5 Labour market engagement by earnings groups, single parents

	1980	2005
	%	
Single fathers		
Less than 2/3 of the median		
Full year, full time	34.3	40.3
Partial	65.7	59.7
Between 2/3 and 4/3 of the median		
Full year, full time	71.3	72.3
Partial	28.7	27.7
Above 4/3 of the median		
Full year, full time	78.7	80.0
Partial	21.3	20.0
All men		
Full year, full time	63.7	65.2
Partial	36.3	34.8
Single mothers		
Less than 2/3 of the median		
Full year, full time	8.1	19.8
Partial	91.9	80.2
Between 2/3 and 4/3 of the median		
Full year, full time	47.9	57.0
Partial	52.1	43.0
Above 4/3 of the median		
Full year, full time	73.6	77.3
Partial	26.4	22.7
All women		
Full year, full time	43.2	51.4
Partial	56.8	48.6

Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

the bottom of the earnings distribution saw a notable increase in their work time as the share of fathers working full year and full time in this group rose from 34% to 40%. However, these changes occurred against a backdrop of significant declines in earnings for fathers in the middle and at the bottom of the earnings distribution.

By contrast, the share of mothers working on a full-year and full-time basis rose across the distribution—especially at the bottom and in the middle—indicating a stronger correlation between changes in earnings and changes in work time for lone mothers.

Like two-parent families, the association between changes in work time and changes in earnings among single-parent families can be quantified by using decomposition techniques based on changes in average family earnings (Table 6). From 1980 to 2005, average earnings declined by 2% among single fathers

Table 6 Decomposition of growth in average earnings, single parents

	Change 1980 to 2005		
	Total	in average earnings within groups	in shares
	%		
Single fathers	-1.8	-2.4	0.6
Less than 2/3 of the median	-1.2	-1.7	0.5
Between 2/3 and 4/3 of the median	-0.8	-0.8	0.0
Above 4/3 of the median	0.2	0.1	0.1
Single mothers	20.3	13.7	6.6
Less than 2/3 of the median	10.0	5.8	4.2
Between 2/3 and 4/3 of the median	3.5	1.9	1.6
Above 4/3 of the median	6.7	6.0	0.7

Note: Excludes single parents who did not work in the reference year.
Source: Statistics Canada, Census of Canada, 1981 and 2006.

and increased by 20% among single mothers. Among single fathers, most of the decline was associated with declines in returns to work in the middle and at the bottom of the distribution. In fact, were it not for the increase in work time of single fathers located at the bottom of the distribution, the decline in earnings would have been even steeper for single fathers.

Among single mothers, a significant portion of increasing earnings were linked to changes in average earnings within groups, especially for those located at the bottom and top of the earnings distribution. Increases in work time among single mothers at the bottom of the distribution also contributed to the overall increase. In fact, the combination of rising work time and rising returns to work at the bottom of the distribution was such that single mothers with lower earnings alone were responsible for one-half of the overall increase in earnings.

The DFL decomposition method was applied to data for single fathers and single mothers separately (Table 7). The technique indicates that earnings polarization among single fathers would not have evolved differently if work patterns and family characteristics had stayed the same. Furthermore, changes in earnings would not have been much different either—perhaps not a surprise, given the modest changes in work time among single fathers. Note that earnings would have declined by even larger amounts in all three groups if

Table 7 Multivariate earnings decomposition, single parents

	Alternative 2005 distribution		1980 work patterns and family characteristics
	Real 2005 distribution	1980 work patterns	
			%
Single fathers			
Distribution	100.0	100.0	100.0
Less than 2/3 of the median	29.6	29.4	30.9
Between 2/3 and 4/3 of the median	38.9	39.1	37.7
Above 4/3 of the median	31.5	31.5	32.2
Earnings growth			
Less than 2/3 of the median	-7.5	-7.0	-15.8
Between 2/3 and 4/3 of the median	-13.7	-13.4	-22.2
Above 4/3 of the median	-9.1	-8.8	-16.9
	0.7	1.0	-7.0
Single mothers			
Distribution	100.0	100.0	100.0
Less than 2/3 of the median	34.5	34.8	35.7
Between 2/3 and 4/3 of the median	29.9	29.0	26.4
Above 4/3 of the median	35.6	36.2	38.1
Earnings growth			
Less than 2/3 of the median	9.6	4.9	-16.0
Between 2/3 and 4/3 of the median	58.0	49.7	15.7
Above 4/3 of the median	8.2	2.9	-18.4
	21.3	17.5	-2.4

Note: Excludes single parents who did not work in the reference year.

Source: Statistics Canada, Census of Canada, 1981 and 2006.

personal characteristics (including rising educational attainment) had stayed the same.

The results were similar for single mothers: their distribution across earnings groups would change very little if work patterns and personal characteristics had stayed the same as those in 1980. However, earnings would not have grown as much over the past 25 years for single mothers if work patterns had stayed the same, especially for those located in the middle of the earnings distribution (3% instead of 8%). Moreover, if single mothers had retained the personal and family characteristics of 1980, earnings growth would have been much more modest for single mothers at

the bottom of the distribution, and would have been negative for women in the top two earnings groups. As such, changes in the characteristics of women—including a rise in the proportion of university-educated women—also accounted for much of the earnings increase among single mothers.¹²

Summary

Time and money are both important resources for families with children for a number of reasons. First, families with two working parents may need to substitute purchased services for the care of their children. Second, time and money have been shown to affect the long-term socio-economic out-

comes of children. Third, families lacking both time and money might face a particular set of challenges in trying to achieve a better work–family balance. Understanding the link between changes in parental work time and earnings is therefore important.

This study used census data to examine whether changes in work time have been accompanied by corresponding increases in parental earnings for various types of families. Families were divided into three groups: those located below two-thirds of the median (low earnings); families located between two-thirds and four-thirds of the median (middle earnings); and families above four-thirds of the median (high earnings). Two-parent families in every group—especially those located at the bottom and in the middle of the earnings distribution—were found to have increased their work time by substantial margins. However, the changes in work time occurred against a backdrop of a stronger increase in earnings for families at the top of the earnings distribution.

Looking only at the effect of changing work patterns on the increase in parental earnings, a large portion (45%) was associated with the rising work effort for all types of families—particularly those located in the middle and at the bottom of distribution. However, a good deal of the overall increase (55%) was due to an increase in average earnings obtained for a given amount of parental work time—particularly among families with high earnings.

Furthermore, even though changing work patterns contributed to the overall increase in earnings, they had little impact on earnings polarization. If families had kept the

same work patterns and demographic characteristics as those in 1980, polarization would have increased faster and the earnings gap between top and bottom families would have been greater. Since parental work hours did not contribute to growing earnings polarization and dispersion, these phenomena are likely related to changes in the wage structure.

This study also examined the evolution of work time and earnings among single fathers and mothers. Work time increased little among single fathers except for those located at the bottom of the distribution, while earnings fell substantially for fathers at the bottom and in the middle of the distribution. Among single mothers, in contrast, increases in work time were accompanied by substantial growth in earnings, particularly among those located at the bottom of the distribution. However, single mothers in all types of families continued to earn much less than their male counterparts in 2005.

Clearly, not all families benefited financially from the increase in family work time over the last 25 years. Today's families face a different set of choices and constraints than families in 1980, and may therefore organize their work time differently. Nevertheless, such results raise the possibility that many families have to work more than a generation ago to meet their financial expectations.

Perspectives

■ Notes

1. This paper does not examine why parental work patterns have changed over the period. Rather, it examines the extent to which changing family work patterns can be linked to changes in family earnings.
2. The proportion of families with two parents as a share of all families declined over the period from 1980 to 2005, while the share of single-parent families rose.
3. Defining the share of low, middle and high earnings families in every working category i as γ_i , and average earnings in every cell as E_i , the portion of the total change in average earnings between 1980 and 2005 associated with changes in average earnings within groups is $[\gamma_{i,05}(E_{i,05} - E_{i,80})]/E_{05}$, and the portion due to changes in group i shares is $[\gamma_{i,05}(\gamma_{i,05} - \gamma_{i,80})]/E_{05}$. With this method, changes in overall earnings can be attributed either to changes in the groups' average earnings or to a change in the groups' share of the population.
4. The growth in average parental earnings is based on the 'trimmed' distribution, with the top and bottom 1% of earners removed. It compares with a 20% increase in median earnings.
5. While changes in average earnings are somewhat different from changes in the median, the median cannot be used in this particular decomposition method as it cannot be decomposed across family types. The disadvantage of this method is that average earnings tend to be influenced by extreme values. To minimize this effect, the top 1% and the bottom 1% of the distribution were removed from the sample.
6. Families located in various parts of the earnings distribution in 2005 were not the same as those in 1980, and may have organized their work lives differently than those who were in the same categories in 1980.
7. From 1981 to 2006, the share of women with at least a university degree rose from 7% to 26% among two-parent families.
8. Changes in family characteristics include age, education level, immigration status and province of residence.
9. An examination of Gini coefficients across the five types of family work patterns confirmed that the changing structure of wages possibly played a role in the increase in polarization. Between 1980 and 2005, the Gini coefficient rose in all types of family work patterns, suggesting that polarization was not due to changes in work patterns.
10. Because non-working families form a larger portion of single-parent families than two-parent families (especially among single mothers), the single-parent families analyses may involve selection issues.
11. The cutoff points across the three types of families were much lower for single mothers than for single fathers since single mothers tend to have lower earnings.
12. According to the census, the proportion of single mothers with a university degree rose from 7% to 15% between 1981 and 2006.

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